Growth Promotion for Child Development

Proceedings of a colloquium held in Nyeri, Kenya, 12–13 May 1992

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Growth Monitoring in Rural Kenya: Experiences from a Pilot Project

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Introduction

In most developing countries, the majority of children in rural areas suffer from growth retardation as a result of the synergism between inadequate nutrition and recurrent bouts of infection. Growth monitoring (GM) has been identified as one of the ways in which this vicious circle can be broken (Alderman et al. 1973; Siswanto et al. 1980; Cole-King 1975). The basic strategy relies heavily on the quality of work carried out by the health worker in charge of GM as well as on the full participation of the mother in the recognition of growth faltering. It also relies on the action the two take to correct the situation.

Taylor emphasized the fact that faltering of child growth is the single best general indicator at an early stage of problems in child health and development (Taylor 1982). He pointed out that growth monitoring and promotion (GMP) is an invaluable tool for assisting the health workers and parents to identify children with nutrition and health problems early enough so that timely action may be instituted. Although there seems indeed to be strong evidence supporting his view, close examination of the results from one of the early projects that is commonly being used to demonstrate the beneficial aspects of GMP, showed the real impact of GMP activities on child mortality to have been considerably less than originally claimed (Kielmann 1983). Nonetheless, based on our own experience, we do consider GMP be an extremely valuable adjunct to child care that, if properly applied under suitable conditions, will identify the child at risk and permit early intervention (Kielmann et al. 1983).

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Growth monitoring has been introduced into many health service programs throughout the world during the past 15 years, despite some doubts of its applicability to other than pilot and demonstration zones. Failure in field implementation has been frequent, especially when programs were undertaken at national levels (Kielmann 1992). To date, results of the few evaluations undertaken show that identification of problems and constraints unique to each local situation will greatly enhance the intended impact of GMP. Emphasis is also being put on the need to make clear distinctions between growth monitoring of individual children and population based growth surveillance. In view of this, it is evident that the need for process evaluations of ongoing GMP programs is paramount. The results of such evaluations will provide planners with information on which to base their judgment on the operational performance of existing programs. In addition, the main administrative and logistic barriers, which are so often at the root of program failure, may be identified and changed.

Unfortunately, the unique potential of GMP has as yet not been fully realized. One of the main reasons for this has been the belief that GMP is simple and, therefore, it must be easy. Contrary to this view, evidence from countries that have implemented GMP programs shows that providing weighing scales and growth charts is not enough. Both the backing of the health services and the participation of the community and, especially, the mother are necessary if GMP is to make a positive contribution to the development of the health and nutrition of preschool children. This crucial point has been emphasized by Hendrata and Rohde (1988) who state that GMP should find the organizational means that will ensure that "the worker interacts with small groups of mothers, that they find participation attractive, easy and not time consuming and most of all rewarding."

There is still little information on the advances made by GMP programs in countries of the African region. Despite this, major commitments have already been made to implement programs as part of the "child survival revolution," and national programs are underway in countries such as Botswana, Lesotho, Kenya, Swaziland, Tanzania, Zaire, Zambia, and Zimbabwe, not to speak of western and northern Africa. Evidence shows that for GMP the greatest constraint in moving from successful pilot projects to these large scale national programs has been a lack of flexibility in both adapting general principles of GMP to specific local conditions and also implementing the GMP as one of many other activities carried out in health facilities without involving the community. It has similarly been shown that GM may fail to achieve beneficial effects in areas with low maternal literacy (Gopaldas et al. 1985). Although longitudinal situation analyses will help establish the impact, if any, of GMP on health and nutrition, it is important at this point to monitor the more immediate problems likely to occur during implementation (Taylor 1982; Lakhani et al. 1984; Grant 1985; Yee and Zerfass 1987; Hendrata et al. 1988).

Study Setting

In 1985, the Ministry of Health of Kenya, with the assistance of UNICEF, set up a number of growth monitoring/growth promotion centres, initially on a pilot basis, in nine districts of Kenya. The objective for this program was to demonstrate the effectiveness of GMP in the identification of children at risk and in making them accessible to early intervention. All children below the age of 36 months were to be weighed regularly according to the following scheme: 0 – 12 months, once every month; 13 – 36 months, once every other month. Given the quite considerable outlays in terms of finance, labour, and time, it seemed important to evaluate its potential effectiveness by examining to what extent all necessary prerequisites for successful GMP were indeed in place.

For this purpose, one of the nine pilot districts, Kakamega, was arbitrarily chosen for investigation because the principal investigator of the evaluation came from the same area, was familiar with the social and cultural environment, and spoke the local language. Within the district, Vihiga division was randomly selected from among 10 divisions. All four health facilities within the division were included for investigation. In all of these, growth monitoring had been implemented in October/November of 1985 and was carried out as a special activity in parallel with routine health care delivery. Close to 36,700 preschool children, i.e., approximately 22,840 below the age of 36 months, formed the target population for MCH and GMP services of these health facilities. Because the scope of evaluation included both GMP activities at the health facility as well as community acceptance of and participation in GMP, a total of 300 households, located around these four health facilities, were selected for in-depth examination through random cluster sampling, provided they had at least one child below the age of 36 months. Where more than one child below 3 years of age was present in the household, one was chosen as index child through random selection.

Evaluation of GMP services was carried out between January and March 1987, i.e., 26 months after program start-up. Detailed results have been published elsewhere (Ettyang 1988).

Method of Evaluation

The methodology of evaluation followed a conceptual model developed earlier (Kielmann 1992), according to which health services are examined as to their potential capacity to support implementation of growth monitoring adequately. According to the model, a functional program requires minimally all of the following conditions to be met:

- There is an *established need* for GMP, i.e., GMP should be instituted if there is a suspicion or proof to suggest that a considerable proportion of children fail to gain weight compatible with healthy development. A program is set up on the assumption that early detection of growth faltering will permit corrective action.

- Successful implementation of a GMP program requires an essential *infrastructure* consisting minimally of:

  (a) a physical setting where GMP may be carried out which is comfortable and has essential utilities for the clients;

  (b) growth monitoring tools, such as accurate scales and growth charts; and

  (c) adequate personnel trained to carry out all functions of GMP, namely determining the nutritional status of children, recording it, interpreting it, and taking action.

- Functional infrastructural units that are distributed so that the majority of the community has ready *access to services*. Services should be affordable, opening hours convenient, and there should be no social barriers to using the services.

- The number of GMP activities carried out at each of these service stations, i.e., the *activity level*, suffices to cover all eligible children within the required monitoring interval; and the *quality* of the GMP process is such that the results are indeed valid.

- Immediate *action* takes place for those children identified to be at risk according to pre-set criteria, either in terms of special or more attention.

- The *community* accepts and is satisfied with the services, hence utilizes the program to an extent that will allow effective *coverage* of the target population.

- Last, a *management* system is in place and functioning that will implement and maintain *quality control* measures, such as ongoing supportive supervision and training; *documentation*, in terms of upkeep and processing of recorded information; and day-to-day *organization* and running of the services.

Results

Service Need Of the 300 randomly selected children, the majority (37%) were between 3 and 12 months of age, almost the same proportion (35%) were between a year and 2 years, and just over one-quarter (28%) were between 2 and 3 years. Table 1 shows their weights and heights. As may be seen the pattern of nutritional deficiencies is comparable to that of other developing countries, with about 4% being wasted and stunted, 23% wasted (but not stunted), 9% stunted (but not wasted), and 65% normal in that they were neither wasted nor stunted. Growth monitoring would definitely seem to be indicated in this child community and, judging from earlier experiences elsewhere (Kielmann et al. 1983), may be expected to bring about significant improvement if properly carried out.

Table 1. Nutritional status of 300 randomly selected children (Vihigo 1987).

	Weight/height		
Height Z Score	Below - 2SD (wasted) n=96	Above - 2SD (normal) n=204	Totals n=300
Below - 2SD (stunted) n=57	3.7%	8.7%	12.4%
Above - 2SD (normal) n=243	23%	64.6%	87.6%

Service Infrastructure, Service Management With respect to the services infrastructure, 7 out of 63 (11%) of health facility staff had been trained in GMP, giving a ratio of trained staff to target population of 1:5242. Even though the four facilities had 10 scales between them, only half were functioning. In none of the four health facilities were any of the required learning and teaching materials related to growth monitoring available in adequate quantities. Two of the four health centres had no child health cards in stock. One had only a limited supply. None of the four centres had data recording forms or visual aids. Referral booklets were available in only two facilities.

Access to GMP Services The average distance that mothers walked to reach a facility was 5.8 km, which required about 70 minutes.

Level and Quality of Activity Within each facility, a daily average of 44 weighings were being carried out, amounting to 25 weighings per (trained) health worker, or 35 weighings per scale per day. The average score obtained on knowledge of the use of growth monitoring information came to 7.5 (15%) out of a potential score of 50. The average score for skill in weighing came to 32 out of 50 (64%).

Action None of the four facilities had made any use of the resultant data, be it for referring children for treatment, advising mothers, or in reporting back to the staff.

Community Satisfaction From among the 300 mothers interviewed, 184 (61%) claimed to be satisfied with the services even though only 68 (23%) could give any explanation of the growth chart. Main reasons for dissatisfaction in descending order of frequency were poor services (24%), lack of drugs (22%), poor accessibility of facilities (16%), bad behaviour on the part of the service providers (14%), long waiting times (12%), and no or incomprehensible advice (11%).

Service Utilization and Coverage Of the 300 children, 74 (25%) had no record whatever of ever having been weighed. The majority of these (47%) were in the 24–36 months age group. Of the 226 who had a record, half had been weighed at least three times, and the same proportion had the first weight taken below 3 months of age. The average number of weighings per child amounted to two, which, incidentally, is corroborated by the total number of children weighed per health worker per day. Given the age distribution of the children, as well as the prescribed weighing schedule, each child should have been weighed 14 times, giving an observed to expected ratio of 0:14. The average number of visits to the health facility for all types of care, including GMP, was five. Adjusting for the age distribution of the children, a total of 3.4 visits per child per year results, for all types of care.

Discussion

Results from the evaluation of this "pilot" project are only slightly more encouraging than those in an earlier investigation, where potential sustainability of growth monitoring in routine governmental and project health services was being examined (Kielmann 1992). In this specific pilot effort almost every single one of our "essential" system components was grossly deficient. Part of these deficiencies were due to poor planning, but most were due to poor management and organization.

Some weaknesses are especially glaring. For instance, why were only seven out of the 63 health workers trained? It should have been quite obvious right from the beginning that this small number could not look after 23,000 children. If each child were to be weighed on average only three times per year, each of the seven health workers would have had to weigh, plot, and interpret the weight of 38 children, and explain the results to the same number of mothers each day of 260 working days per year. As it was, health workers did not manage adequately to look after the 25 children they saw each day, as reflected by the mothers' widespread lack of understanding of what the whole exercise was about, by the fact that no action ever followed identification of children at risk, and by the sizeable proportion, more than one-third, of mothers who expressed dissatisfaction with the services. Had all health workers been trained, a ratio of health worker to preschool children of 1:601, instead of almost 10 times as much, would have resulted. Distribution of services was also poorly planned. To have to walk 70 minutes in case of acute illness may be reasonable, but for a preventive and growth promotive service, it is unrealistic. Why, one asks, were not satellite GMP stations set up and staffed, for instance, by specially trained community health workers, as had successfully been done elsewhere?

Equally striking is the apparent lack of proper program management as manifested by the absence of "essential" material such as growth-monitoring cards, service records, and educational materials. Although the lack of knowledge and skills among the health workers was no different from that found in other locations, and suggests that supervision was nonexistent or, if carried out, largely ineffective, one might have assumed that such would not be the case in a "pilot" project.

In light of the foregoing, it is surprising, and could be embarrassing for the health care providers, that more than 60% of mothers expressed satisfaction with the services, as reflected also in their relatively high rate of participation. At 1.4 weighings per child per year (and more than three visits for all types of care), service utilization, although not fully adequate to have an impact, was decidedly better than one would have expected. The decrease in GMP attendance rate with increase in age, suggests though, that mothers came primarily for other than GM services, notably immunization.

The findings suggest that the community was moderately interested in GMP services, despite the rather formidable obstacles of poor access and even poorer services. They also point to considerable breach of trust vis-à-vis the communities entrusted to them, on the part of those organizing and running the services. As so often, the communities' needs remained unmet, and their efforts largely unrewarded.

Whether 1.4 weighings per child per year in that age bracket (0 – 36 months) would have been sufficient to bring about an improvement in their nutritional situation, is difficult to assess. The average number of weighings amounted to only 14% of the prescribed schedule. However, the "prescribed" schedule adopted in that program seems unrealistic to begin with. According to our experience, an average of three weighings per child per year, i.e., four in the first year, three in the second, and two in the third should fully suffice aside from being far more feasible both from the mothers' as well as health care providers' points of view (Taylor et al. 1978).

Last, the question of whether GMP can be done through regular health services even when resources were adequate for assessment and action, is yet to be resolved. It is quite clear that if resources for action are not readily available, GMP is tantamount to measurement alone, and this is not the best use of everyone's time and effort.

Conclusions and Recommendations

Assuming that our experience is not unique, that it represents more the norm than the exception, and we do have some evidence to that effect from our earlier investigations (Kielmann 1992), several conclusions and recommendations may be made.

First, it seems that the community is indeed interested and willing to support and sustain efforts promising better health for their children. We have evidence to that effect from this and other studies (Taylor et al. 1978). Second, it seems to be equally clear that in the majority of cases where it has been looked into, it is the health care provider, who tends to default (Kielmann 1992). Third, international organizations (multilateral, bilateral, and NGOs) bear a large proportion of the blame for program failure by (a) uncritically advocating programs, such as GMP, without specifying, ensuring and monitoring the presence of minimal system requirements; (b) providing unrealistic program recommendations, such as in this case, the excessive frequency of weighings; (c) not evaluating enough; and (d) delaying or avoiding making recommendations on necessary corrective actions. It remains to be seen whether GMP services, when run by the community itself as has recently been advocated, will be more successful.

If GMP is to succeed within the routine services structure, a situational analysis would first need to be done to assess whether the existing system can accommodate additional activities. If not, as in the case of our "pilot" effort, the necessary conditions will have to be created. Next, a growth monitoring schedule

needs to be worked out that allows the majority of mothers to adhere to it, yet is able to detect growth faltering early enough to permit intervention in the majority of children at risk. Once established, the GMP process needs to be subjected to ongoing quality control measures by instituting supervision and in-service training. Last, and most important, provisions must be made so that children identified as at risk are indeed treated.

References

Alderman, M.H., Laverde, H.T., and D'Souza, A.J. 1973. Reduction of young child malnutrition and mortality in rural Jamaica. *Lancet* (1):1166–1169.

Cole-King, S. 1975. Under-fives clinics in Malawi: The development of a national program. *J Trop Pediat Environ Child Health* 21:183–186.

Ettyang, G.A. 1988. The evaluation of a nutrition surveillance, growth monitoring and promotion program: An overview of the coverage and quality of the services provided in Vihiga Division of Kakamega District. Thesis submitted to the University of Nairobi for the degree of Master of Science in Applied Human Nutrition, Nairobi, Kenya.

Gopaldas, T., Christian, P.S., Abbi, R.D., and Gujral, S. 1985. Does growth monitoring work as it ought to in countries of low literacy? *J Trop Pediat* 36:322-327.

Grant, J. 1985. United Nations' Children's Fund: State of the world's children, Oxford, Oxford University Press.

Hendrata L., and Rohde, J.E. 1988. Ten pitfalls of growth monitoring and promotion. *Indian J Ped* (Supp.) 55(1):9–15.

Kielmann, A.A. 1992. Growth monitoring and promotion in the health services setting. Paper presented at the Colloquium on Growth Promotion for Child Development, Nyeri, Kenya, 12–13 May, 1992.

Kielmann, A.A., Ajello, C.A., and Kielmann, N.S. 1982. Nutrition intervention: An evaluation of six studies. *Studies in Family Planning* 13(8/9):246-257.

Kielmann, A.A., Nagaty, A., and Ajello, C.A. 1986. Control of deaths from diarrheal disease in rural communities: II. Monitoring and motivating the community, *TROPA* 37(1):15–21.

Kielmann, A.A., Taylor, C.E., and De Sweemer, C. 1983. Child and maternal health services in rural India. The Narangval experiment, US1. Integrated Nutrition and Health Care, Baltimore: Johns Hopkins University Press.

Lakhani, A.D., Avery, A., Gordon, A., and Tait, N. 1984. Evaluation of a home-based health record booklet. *Arch Dis Childhood* 59:1076-1081.

Siswanto, A.W., Kusnanto, J.H., and Rhode, J.E. 1980. Comparison of nutritional results of clinic based and village based weighing programs. *Pediat Indonesia* 20:93-103.

Taylor, C.E. 1988. Child growth as a community surveillance indicator. *Indian J. Pediat* (Supp.) 55(1):16–25. 5)

Taylor, C.E., Kielmann, A.A., and De Sweemer, C. 1978. The Narangwal experiment on interactions of nutrition and infections: I. project design and effects upon growth", *Indian J Med Research* Vol 68, (Suppl.), Dec. pp. 1–20.

Yee, V. and Zerfass, A. 1987. Issues in growth monitoring and promotion. Clearing house on infant feeding and maternal nutrition. *J Am Pub Hlth Ass*, June.